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ABSTRACT

This research paper examines the meaningfulness of sex differences in the Allport, Vernon and Lindzey (AVL) Study of Values Scale and in selected scales of the Strong-Campbell Interest Inventory (SCII), using somewhat diverse groups of men and women. By comparing men's and women's scores on the two measures, it was found that little accuracy in prediction and interpretation is gained by considering subjects' sex. Far more of the variance in these interest-values measures must be explained in terms other than gender and sex-role training, behaviors, and values. (Author/PFS)

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MEANINGFULNESS OF SEX DIFFERENCES IN SELECTED INTEREST-VALUES TEST SCORES[1]

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Meaningfulness of Sex Differences in Selected Interest-Values Test Scores

With little doubt, the most widely used measure of values (or of dominant interests in personality) in group research investigations is the Study of Values: AVL (Allport, Vernon, & Lindzey, 1970). One of the more frequently used interest inventories by personnel in college-university counseling centers to help facilitate students' decisions about educational and vocational programs is the Strong-Campbell Interest Inventory: SCII (Campbell, 1974).

Historically, groups of men and women earn statistically significantly different mean scores on these types of interest-values inventories. These empirically obtained results have led to two different outcomes: (1) the development of either separate norms for the sexes or different interpretations of the same test score depending upon the sex of the subject; and, (2) the theorizing that differential sex-role training in American culture explains the obtained statistically significant sex differences on a number of psychological measures. What is disconcerting about this is that there has been little or no systematic investigation of the meaningfulness of statistically significant sex differences in interest-values inventory scores. This research paper is directly addressed to the study of meaningfulness of sex differences in the AVL scales and in selected scales of the SCII, and with somewhat

diverse groups of men and women.

For some time now (e.g. Hays, 1963) writers on research methodology and statistics have urged that investigators go beyond reporting outcomes in terms of statistical significance only, and to include some index of the strength of the relationship between the variables. This urging is particularly important in sex differences research wherein typically large samples are studied and small mean differences prove to be statistically significant at or beyond conventionally accepted levels of probability. Indeed, Block (1976) in her comprehensive and critical review of Maccoby and Jacklin's (1974) book summarizing sex differences research, comments that the use of confidence intervals instead of significance tests would have provided a proper interpretative perspective. Block's suggestion of the use of confidence intervals is but one procedure among several inter-related ones. Other indices would include d (size effect), estimate of omega squared, and proportion of distribution overlap.

Two investigators (Hicks & Pellegrini, 1966) studied the meaningfulness of Negro-white differences in intelligence test scores by calculating estimated omega squared (est. w^2) values for studies reviewed by Shuey in her book The Testing of Negro Intelligence. The est. w^2 value is an index of the proportion of variance in the dependent variable (IQ in the example) accounted for by the independent variable (racial-ethnic group membership in the example), and is calculated through an equation provided by Hays (1963). For 40 two-group studies, most of which reported significant t ratios, Hicks and

Pellegrini found a range of est. w^2 values of .00 to .38, and a median value of est. w^2 of .06. Hicks and Pellegrini concluded that, on the average, approximately 6% of the variance in intelligence test scores was accounted for by the independent variable of racial-ethnic group membership. Such a summary finding does, as Block (1976) suggested, provide both a different and better interpretative perspective over a significant-nonsignificant frame of significance testing.

It is herein proposed to report outcomes of similar analyses but for sex differences reports obtained from the use of the AVL and the Occupational Theme Scales of the SCII. The six scales of the AVL are called Theoretical, Economic, Aesthetic, Social, Political, and Religious. In the normative data for this ipsative measure, sex differences are found for all six scales. The SCII Occupational Scales are called Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. In the normative data for this measure, sex differences are found for all six scales.

Samples and Analyses

Calculations of *t* ratios and est. w^2 values were completed for men vs. women for the AVL scale means for:

1. the high school normative groups (Allport et al., 1970).
2. the college normative groups (Allport et al., 1970).
3. high verbal ability beginning junior college students from six different junior colleges (Plant & Minium, 1967).
4. low verbal ability beginning junior college students from six

different junior colleges (Plant & Minium, 1967).

5. beginning junior college students from six colleges who finished 3 or 4 semesters of enrollment in two years following testing (Plant & Telford, 1966).
6. beginning junior college students from six colleges who finished 1 or 2 semesters of enrollment in two years following testing (Plant & Telford, 1966).
7. beginning junior college students from six colleges who finished no semesters of enrollment anywhere in two years following testing (Plant & Telford, 1966).
8. men and women members of Mensa (Southern & Plant, 1968).

For the AVL Scales, eight sex-group comparisons were made for six scale variables; 48 t ratios and est. w^2 values resulted.

Calculations of t ratios and est. w^2 values were completed for men vs. women for the SCII Occupational Theme Scales for the following samples:

1. the SCII normative groups (Campbell, 1974).
2. high verbal ability university juniors, seniors, and graduate students enrolled in psychology courses (Plant & Southern, 1977).
3. low verbal ability university juniors, seniors, and graduate students enrolled in psychology courses (Plant & Southern, 1977).
4. a "validation" sample of university psychology students unselected in terms of verbal ability (Talovic, 1977).

5. a "cross-validation" sample of university psychology students unselected in terms of verbal ability (Talovic, 1977).

Results

For the AVL comparisons, 44 of the 48 *t* ratios were statistically significant beyond conventionally accepted levels. Within each set of scale comparisons, all mean differences were in the same direction. For example, in eight comparisons for the Theoretical Scale men had higher means than did women, and for the Aesthetic Scale women had higher means than did men. The *t* test comparisons were very consistent irrespective of samplesstudied or absolute levels of mean scale scores. The 48 est. w^2 values ranged from .00 to .21 with an overall median value of .10. These values were generally higher for the Theoretical and Social Scales which is not surprising given the ipsative nature of AVL Scale scores. Over the six scales, on the average, sex of subject accounted for approximately 10% of the variance in AVL Scale scores.

For the SCII comparisons, 12 of the 30 *t* ratios were statistically significant beyond conventionally accepted levels. Generally, with a set of scale comparisons, mean differences were in the same direction. Those which were not yielded non-significant *t* ratios. The 30 est. w^2 values ranged from .00 to .17 with a median value of approximately .04. Generally, these values were the highests for the Realistic Scale and lowest for the Conventional Scale. Over the six scales, on the average, sex of subject accounted for approximately 4% of the variance in SCII Occupational Theme Scale scores.

Discussion

From a practical interpretative standpoint, the relatively low estimates of omega squared suggest that very little added accuracy in prediction or assessment can be made by considering the subjects' sex. Far more of the variance in these interest-values measures must be explained in terms other than gender and sex-role training, behaviors, and values.

It would seem that these types of analyses conducted with the AVL and SCII Occupational Theme Scales call into serious question the practical advantage of separate sex norms.

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Table 1

Men vs. Women: Study of Values (AVL) Scores

AVL Scale & Data Source***	Men N	Men X	Men s	Women N	Women X	Women s	t	est. w^2
Theoretical								
Allport et al.	5320	43.3	6.4	7296	37.0	6.9	53.39**	.18
(1970)	2489	43.8	7.3	1289	35.8	7.2	32.00**	.21
Plant & Minium	228	46.1	7.4	186	39.3	7.4	9.32**	.17
(1967)	216	43.8	6.1	173	38.9	6.5	7.66**	.13
Plant & Telford	440	45.1	7.0	336	38.7	6.6	13.06**	.18
(1966)	344	44.7	6.8	240	38.6	6.6	10.70**	.16
	131	43.8	6.8	163	38.6	7.0	6.42**	.12
Southern & Plant (1968)	42	50.3	6.3	30	48.3	7.8	1.16	.00
Economic								
Allport et al.	5320	42.8	6.9	7296	38.2	6.3	40.35**	.11
(1970)	2489	42.8	7.9	1289	37.9	7.3	20.00**	.10
Plant & Minium	228	40.3	8.7	186	36.7	7.5	4.80**	.05
(1967)	216	42.3	7.4	173	39.4	6.8	4.03**	.04
Plant & Telford	440	42.6	7.1	336	38.5	6.7	8.20**	.08
(1966)	344	42.7	7.3	240	38.4	7.2	7.17**	.08
	131	41.5	8.1	163	38.5	6.5	3.45**	.04
Southern & Plant (1968)	42	38.3	9.4	30	35.6	6.0	1.29	.01
Aesthetic								
Allport et al.	5320	35.1	7.8	7296	38.2	7.1	-22.14**	.04
(1970)	2489	35.1	8.5	1289	42.7	8.3	-11.92**	.04
Plant & Minium	228	36.6	10.1	186	41.5	9.6	- 5.15**	.06
(1967)	216	34.4	7.2	173	37.1	8.6	- 3.33**	.03
Plant & Telford	440	35.2	7.5	336	39.2	7.9	- 7.14**	.06
(1966)	344	34.4	8.1	240	39.2	7.5	- 7.38**	.09
	131	36.0	8.5	163	38.8	7.9	- 2.89**	.03

Table 1 (cont'd)

Men vs. Women: Study of Values (AVL) Scores

AVL Scale & Data Source***	Men N	Men X	Men s	Women N	Women X	Women s	t	est. ω^2
Aesthetic (cont'd)								
Southern & Plant (1968)	42	45.6	9.3	30	50.3	9.0	- 2.08*	.04
Social								
Allport et al. (1970)	5320	37.1	6.3	7296	43.3	6.9	-51.67**	.17
	2489	37.1	7.0	1289	42.0	7.0	-20.42**	.10
Plant & Minium (1967)	228	34.6	7.1	186	39.5	6.9	- 7.10**	.11
	216	36.2	6.2	173	41.7	6.7	- 8.33**	.15
Plant & Telford (1966)	440	35.3	6.3	336	40.4	6.5	-11.09**	.14
	344	35.0	6.7	240	40.5	6.9	- 9.48**	.13
	131	35.1	6.5	163	40.9	7.1	- 7.25**	.15
Southern & Plant (1968)	42	34.3	8.4	30	36.0	8.4	- .85	.00
Political								
Allport et al. (1970)	5320	43.2	5.9	7296	39.1	5.9	37.27**	.10
	2489	42.9	6.6	1289	37.8	6.2	20.50**	.10
Plant & Minium (1967)	228	42.8	7.2	186	37.9	7.4	6.81**	.10
	216	43.0	6.2	173	39.3	5.7	6.17**	.09
Plant & Telford (1966)	440	42.7	6.1	336	38.6	6.2	9.11**	.09
	344	43.3	6.7	240	38.7	6.8	8.07**	.10
	131	43.5	6.9	163	37.9	5.6	7.57**	.16
Southern & Plant (1968)	42	43.3	7.3	30	38.6	5.3	3.12**	.11
Religious								
Allport et al. (1970)	5320	37.9	8.3	7296	43.8	8.1	-42.14**	.12
	2489	38.2	9.3	1289	43.8	9.4	-20.34**	.10

Table 1 (cont'd)

Men vs. Women: Study of Values (AVL) Scores

AVL Scale & Data Source***	Men N	Men X	Men s	Women N	Women X	Women s	t	est. w^2
Religious (cont'd)								
Plant & Minium (1967)	228	38.3	10.6	186	45.0	9.6	- 6.77**	.10
	216	39.0	8.5	173	43.2	7.9	- 5.06**	.06
Plant & Telford (1966)	440	39.0	8.4	336	44.5	8.2	- 9.17**	.10
	344	38.2	9.0	240	44.1	9.2	- 7.76**	.09
	131	38.6	10.1	163	45.0	8.1	- 5.93**	.11
Southern & Plant (1968)	42	27.9	9.5	30	31.3	9.4	- 1.50	.02

*** Allport et al. (1970) high school and college-university norm groups.
Plant & Minium (1967) frosh. from 6 junior colleges; of high and of low verbal ability.
Plant & Telford (1966) frosh. from 6 junior colleges; finished either 3 or 4, 1 or 2, or 0 semesters enrollment in two years following test taking.
Southern & Plant (1968), members of Mensa.

** Significant beyond .01 level.

* Significant beyond .05 level.

Table 2

Men vs. Women: Strong-Campbell Interest Inventory

Occupational Themes Scores

Theme Scale & Data Source***	Men N	Men X	Men s	Women N	Women X	Women s	t	est. w^2
Realistic								
Campbell (1974)	300	54.5	9.9	300	45.5	10.1	11.11**	.17
Plant & Southern (1977)	30	51.8	8.6	30	46.7	7.2	2.43*	.08
Plant & Southern (1977)	30	51.0	8.4	30	45.5	8.6	2.52*	.08
Talovic (1977)	78	51.8	8.5	111	45.9	9.7	4.29**	.08
Talovic (1977)	77	52.9	11.3	110	45.5	8.9	5.04**	.12
Investigative								
Campbell (1974)	300	51.5	9.9	300	48.5	10.1	3.70**	.02
Plant & Southern (1977)	30	53.9	8.0	30	54.7	8.0	- .39	.00
Plant & Southern (1977)	30	52.4	7.7	30	49.0	9.2	1.53	.02
Talovic (1977)	78	53.1	7.9	111	50.4	9.5	2.05*	.02
Talovic (1977)	77	53.0	8.4	110	50.1	8.8	2.19*	.02
Artistic								
Campbell (1974)	300	46.8	11.0	300	53.2	8.9	- 7.80**	.09
Plant & Southern (1977)	30	56.6	6.6	30	57.7	6.9	- .63	.00
Plant & Southern (1977)	30	51.5	9.8	30	55.6	8.3	- 1.73	.03
Talovic (1977)	78	54.6	9.0	111	55.1	8.3	- .40	.00
Talovic (1977)	77	52.6	9.2	110	55.3	7.7	- 2.17*	.02

Table 2 (cont'd)

Men vs. Women: Strong-Campbell Interest Inventory

Occupational Themes Scores

Theme Scale & Data Source***	Men N	Men X	Men s	Women N	Women X	Women s	t	est. w^2
Social								
Campbell (1974)	300	48.7	10.9	300	51.3	9.0	- 3.17**	.01
Plant & Southern (1977)	30	49.2	9.9	30	51.1	9.1	- .77	.01
Plant & Southern (1977)	30	55.2	9.0	30	54.6	10.7	.21	.00
Talovic (1977)	78	53.4	9.5	111	53.3	10.6	.07	.00
Talovic (1977)	77	55.6	8.5	110	51.9	9.2	2.83**	.04
Enterprising								
Campbell (1974)	300	51.9	11.1	300	48.1	8.8	4.63**	.03
Plant & Southern (1977)	30	45.1	7.5	30	47.9	8.6	- 1.35	.02
Plant & Southern (1977)	30	48.8	10.1	30	49.0	8.6	- .08	.00
Talovic (1977)	78	47.3	9.0	111	48.0	8.8	- .54	.00
Talovic (1977)	77	48.3	9.3	110	48.3	8.9	- .04	.00
Conventional								
Campbell (1974)	300	49.9	9.8	300	50.1	10.2	- .24	.00
Plant & Southern (1977)	30	43.1	8.6	30	47.8	10.7	- 1.88	.04
Plant & Southern (1977)	30	45.2	9.8	30	47.1	11.0	- .71	.00
Talovic (1977)	78	43.7	8.4	111	47.0	10.5	- 2.29*	.02
Talovic (1977)	77	47.2	10.0	110	46.4	10.3	.55	.00

*** Campbell (1974) norm groups.
Plant & Southern (1977) high and low verbal ability psy. students, SJSU.
Talovic (1977) validation and cross-validation samples of psy. students, SJSU.

** Significant beyond .01 level.

* Significant beyond .05 level.